

REMARKS/ARGUMENTS

Page 1 of the specification has been amended to include a cross reference to the PCT application on which priority is based. Furthermore, an amended Application Data Sheet is submitted herewith.

An Abstract of the Disclosure is submitted herewith. A substitute specification is submitted amending the original specification to insert headings, remove excess text and modify terminology.

For the reasons set forth below, it is submitted that Claim 21 and the claims independent thereon are not met by a combination of Morgan '875 and Merchant '548. It is requested that the Examiner reconsider and withdraw the rejections of the claims.

Contrary to the invention claimed in the present application, Morgan '875 is based on a different problem and utilizes different means to solve the problem. Morgan discloses a process for real time charge setting of telecommunication connections, but exclusively for **terminating** calls, that is, calls termination for a subscriber that is roaming in telecommunications networks outside the home network (column 2, lines 57-63). The real time charge setting is carried out by a reconfiguration of subscriber records within the home location register situated in the subscriber's home network. The reconfigured records are transmitted from the home location register to the roaming network. If a call originating from the home network is received for a subscriber who is roaming in a foreign network, it is checked by the home network to determine whether or not the subscriber is permitted to receive calls within the roaming area, i.e., whether the subscriber has paid in advance for the requested telecommunication service. Morgan provides no disclosure about a process for real time charge setting of calls **originating** from a subscriber who is roaming in the foreign network.

The invention defined by Claim 21 is directed to a process for real time charge setting of telephone connections in mobile radio networks requested from a subscriber roaming in a foreign network. According to the present invention, in a mobile radio network the building-up of the communication connection between the calling subscriber and the called subscriber, and the real time charge setting, take place through the subscriber's home network. If the calling subscriber located in the foreign network wishes a connection with a called subscriber, the calling subscriber sends an information telegram that contains at least the desired target number of the called subscriber and the identity of the calling subscriber to

a special network element located in the home network. After extracting the necessary data contained in the received telegram message, the special network element establishes connections to the called and the calling subscriber. This message may be sent as a Short Message (SMS).

Clearly, Morgan '875 does not provide a disclosure of the subject matter defined by Claim 1 and discussed above.

Merchant '548 discloses setting up a call connection between a non-home location and a home location whereby a call request message is sent via a separate, non-signaling communication channel, i.e., the Internet. The claimed invention differs from Merchant in that it calls for the establishment of the call connections in mobile radio networks, and specifically sends the information telegram over the mobile phone networks. In one form of the invention, an SMS telegram message is sent from the calling subscriber roaming in a foreign network to a special network element in the home network.

This differs substantially from Merchant whereby the calling subscriber requires both a telephone set and a personal computer to request the connection to a desired target number. With the present invention, the calling subscriber requires only a mobile telephone to request the desired telephone connection, and access to a personal computer and the Internet is not required to initiate the call connection.

It is submitted that Claim 21 and the claims dependent thereon define over the combination of Morgan '875 and Merchant '548 for the reasons set forth above. It is requested that the Examiner reconsider and withdraw the rejections of the claims and pass the application to issue.

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If the Examiner believes it would be helpful to have a telephone interview to discuss the present application, it is requested that he telephone the undersigned at 260-460-1692.

Respectfully submitted,

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Enc. Application Data Sheet
Replacement Drawing Sheet
Annotated Drawing Sheet
Showing Changes Made
Appendix I
Appendix II
Return Postcard

CERTIFICATION OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on: July 23, 2004

JOHN F. HOFFMAN, REG. NO. 26,280

Name of Registered Representative

Signature

July 23, 2004

Date

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APPENDIX II
SPECIFICATION AS FILED SHOWING MARKED-UP CHANGES

~~Method for the Real-Time Billing of Telecommunication
Links When a Subscriber is Located Outside His Home Network~~

METHOD FOR THE REAL-TIME BILLING OF TELECOMMUNICATION
LINKS WHEN A SUBSCRIBER IS LOCATED OUTSIDE HIS HOME NETWORK

Specification

Cross-Reference to Related Application

This application is a 371 of Application No. PCT/DE99/02569, filed August 18, 1999.

Background of the Invention

[0001] The invention relates to a process for the real-time charge-setting of telecommunication connections with one of the participants staying outside of his own network, ~~according to the generic term of patent 1.~~

[0002] At present, in mobile radio networks, essentially two processes are to be distinguished for the real-time charge-setting of telecommunications connections. These are based on an implementation of prepaid access entitlements, so called prepaid participant relations, which, however, are not suitable for use outside of the home network in which the charge-computing takes place. This, however, is desirable in the case of modern, internationally standardized mobile radio networks with reciprocal agreement for the so-called "roaming".

[0003] For one thing, it is a known practice to perform a real-time coverage of the connection fees falling due in corresponding arrangements of the telecommunication network, as well as the interruption of the current and of further connections when a prepaid credit is used up. This process, however, does not permit use outside of the home network of the participant. The reason for this is that no real-time exchange of fee data is provided between the different

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~~...between the different~~ networks and no real-time exchange of fee data is provided, since that would have as a consequence too high an administrative expenditure. There, the time between the point at which the charge are falling due and the communication of the charge data and computation of the charges in the home network, can be used for connections not covered by a credit balance.

[0004] For this WO-A-98 34425 discloses a process for the real-time charge-setting of incoming connections to subscribers who are ~~staying~~ located in a roaming network. The ~~charge-setting~~ charge-setting takes place through a real-time control of the subscriber entitlement profiles in the home register of the home network, and the conveyance of the subscriber data to the roaming network. If a call is received from the home network for the subscriber ~~staying~~ located in a roaming network, examination is made as to whether the subscriber is entitled to the roaming and has a sufficient credit at his disposal, before the connection is set up. A real-time charge-setting of outgoing connections from the roaming network is not possible.

[0005] In the second place, it is known that a real-time coverage of the connection fees that fall due takes place in the end-apparatus, this however being possibly undercut by inadvertently or intentionally faulty end-apparatus software.

[0006] Underlying the invention is the problem of proposing a process for the real-time charge-setting of telecommunication connections with a subscriber ~~staying~~ located outside of his home network, which is to be implemented simply and economically, and which makes do without any, or with only slight, modifications to existing network arrangements.

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[0007] ~~This problem is solved by the characterizing features of patent claim 1.~~

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Summary of the Invention

[0008] The invention is based on the concept that the building-up of the telecommunication connection[[,]] and the real-time charge coverage take place through the home network, even if [[(one)]] one of the subscribers is ~~staying~~ located outside of his home network.

[0009] With a subscriber ~~staying~~ located outside of his home network, abroad for example, through a configuration of the subscriber relation no direct building-up of a telecommunication connection is ~~possibly~~ possible over the foreign telecommunication network. ~~For this in the....~~

{Text breaks off}

[0010] If a connection is desired with one of the participants ~~staying~~ located abroad, there occurs first of all a transmission of an information telegram to a special network element in the home network of that participant, in which telegram there is conveyed at least the target call number of the desired connection, as well as the identity of the calling participant. In a preferred form of execution, the data telegram consists of a brief message which is sent by means of Short Message Service (SMS). It is also provided, however, to assign to the special network element a certain call number which can be dialed by the participant. In the dialog process, then, the call number of the desired conversation participant is ~~asked from~~ inquired of the network element and this can be put in over the keyboard of the end apparatus.

[0011] The special network element, after checking of the data and of the allocated actual fee credit, builds up the connections to the called- and to the calling participants. In a preferred form of execution, the special network element consists of a ring-back server with connections to intelligent network functions which simultaneously can also be responsible for the monitoring of the prepaid fees (Pre-Paid Server).

[0012] Since all the cost-causing connections are built up in the home network, it is possible ~~[[here]]~~, in a customary manner, to have a real-time monitoring of the connection, and the connection can be broken off in the event that the credit is used up.

[0013] If a special protection against misuse of the communicated data is desired, the transmission of the data can occur by means of an application to the participant's identity module (SIM for example), with use of a suitable cryptographic process. The development of the requisite protocols occurs through the participant's identity module, which also performs

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the identification of the participant with respect to the network. It is thus ensured that unauthorized parties cannot telephone at the expense of other participants.

[0014] The essential advantage of the invention that the initiation and control of the cost-causing connections always take place through network elements located in the home network, even if the subscriber happens to be in a foreign telecommunication network.

[0015] There is present, further, the advantage that the transmission of fee-relevant information data can occur through end-to-end encoded message transmission, with use of cryptographic keys, the issuing of which lies under control of the home network operator.

[0016] A further advantage ~~lies in that here~~ is that, by the coded transmission of the data, a misuse of subscriber relations by unauthorized persons is prevented. It is not possible for third parties to conduct conversations from the domestic and/or foreign territory at the expense of the entitled subscriber.

Brief Description of the Drawing

[0017] In the following, the invention is explained in detail with the aid of an example of execution ~~that refers to a drawn figure. There proceed here, from the drawing and its description, further features and advantages of the invention shown in Figure 1.~~

Detailed Description

[0018] [[The]] Figure 1 of the drawing[[,]] shows as an example a mobile radio subscriber 1, who is located in the territory of a foreign mobile radio network 2 that lies outside his own mobile radio network 3. The mobile radio networks 2 and 3 are, for example, mobile radio networks according to the GSM standard. It is presumed that a roaming agreement exists between the operators of the mobile radio networks 2 and 3.

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The mobile radio subscriber 1 now desires the establishment of a conversation connection to an arbitrary subscriber 4 who is to be reached, for example, under the call number 02289360. For this the ~~subscribed~~ subscriber 1 must first enroll in the foreign mobile radio network 2 and he is then served by the responsible mobile exchange center 5. According to the invention, it is now impossible for the mobile radio subscriber 1 directly to establish a conversation connection to the subscriber 4. The Subscriber 1 can, however, for example by means of a brief message over the Short Message Service (SMS), send a data telegram 6 to a call-back server 7 arranged in the home network 3. The data telegram, there, contains at least the target call number (02289360) of the subscriber 4 and the call number (+4927999xxxxxxx) of the calling subscriber 1. The use of the Short Message Service presents the advantage that in the short message the identity of the calling subscriber is communicated.

[0019] The call-back server 7 is bound in a known manner into the home network 3, and it is constructed as a standard component. From the received data telegram 6, the call-back server 7 extracts the call number of the called- and that of the calling subscribers, and thereupon it initiates a connection 8 to the calling subscriber 1, that is to say to the sender of the telegram 6, and establishes a connection 9 to the desired target call number, that is to say to ~~subscribed~~ subscriber 4. Now a conversation connection is built up between the mobile radio subscriber 1 and the subscriber 4, which connection is completely initiated and controlled by ~~[[he]]~~ the home network 3 and the outgoing connections may be locked with the subscriber located outside his home network. In a customary manner, there can now occur a real-time monitoring of the connection fees for the connections 8 and 9, in which the connection fees are then directly computed by the home network 3 and can be deducted from the prepaid credit of subscriber 1. The charge coverage of the connections may take place through an IN on-line charge-setting.